

What is claimed is:

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AG
1. A gas sensor comprising:  
a hollow cylindrical housing having an open end;  
5 a sensor element disposed within said housing, said sensor element having a sensing portion projecting from the open end of said housing; and  
a cover assembly made up of an outer cylindrical cover and an inner cylindrical cover each of which includes an open end portion  
10 and a body portion, the body portion of the inner cylindrical cover being disposed within the body portion of the outer cylindrical cover in a non-contact fashion, the open end portion of at least one of the outer and inner cylindrical covers having a shoulder which is placed in contact with the open end portion of the other cylindrical  
15 cover to establish a positional relation between said cover assembly and said housing which defines portions of the outer and inner cylindrical covers installed on an end side wall of said housing continuing from the open end thereof.
- 20 2. A gas sensor as set forth in claim 1, wherein the open end portion of each of the outer and inner cylindrical covers has a side end wall greater in diameter than the body portion and a shoulder formed between the side end wall and the body portion, the shoulder of the inner cylindrical cover being placed in contact with  
25 the shoulder of the outer cylindrical cover to establish a positional relation between the open end portions of the outer and inner

l covers which defines a given lap  
and inner cylindrical covers wh  
of said housing continuing from  
  
sensor as set forth in claim 1, v  
diameter portion and a small-dia  
wall is defined and a step formed  
meter portion and the small-dia  
the open end portion of the inner  
wall bent outward to define the s  
ed in contact with the step of sa  
portion of the outer cylindrical c  
shoulder of the inner cylindrical  
nd portions of the outer and inn  
n the end side wall of said hous  
  
sensor as set forth in claim 1, v  
the outer cylindrical cover has a  
formed between the side end wa  
nd portion of the inner cylindric  
outward to define a flange which  
of the open end of said housing  
f with the shoulder of the outer  
given lap of the open end portio  
the end side wall of said housin  
mbly on said housing.

[illegible]

4. A gas sensor as set forth in claim 1, wherein the open end portion of the outer cylindrical cover has a side end wall and the shoulder formed between the side end wall and the body portion, the open end portion of the inner cylindrical cover having an end wall bent outward to define a flange which is placed in contact with a surface of the open end of said housing and which engages at an end thereof with the shoulder of the outer cylindrical cover to secure a given lap of the open end portion of the outer cylindrical cover over the end side wall of said housing for installation of said cover assembly on said housing.

5. A gas sensor as set forth in claim 1, wherein the open end portion of each of the outer and inner cylindrical covers has a side end wall and a shoulder formed between the side end wall and the body portion, the side end wall of the inner cylindrical cover abutting at an end thereof on the open end of said housing, the shoulder of the inner cylindrical cover being placed in contact with the shoulder of the outer cylindrical cover to secure a given lap of the side end wall of the outer cylindrical cover over the end side wall of said housing for installation of said cover assembly on said housing.

6. A gas sensor as set forth in claim 1, wherein the shoulder of the open end portion of the one of the inner and outer cylindrical covers is placed in contact with the open end portion of the other cylindrical cover on a plane extending substantially perpendicular to a longitudinal center line of said cover assembly to secure areas of the outer and inner cylindrical covers installed on the end side wall of said housing.

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7. A gas sensor as set forth in claim 6, wherein the inner cylindrical cover is disposed within the outer cylindrical cover coaxially with each other, the shoulder of the open end portion of the one of the inner and outer cylindrical covers is placed in annular line contact with the open end portion of the other cylindrical cover.

8. A gas sensor comprising:

a hollow cylindrical housing having an open end in which a groove is formed;

5 a sensor element disposed within said housing, said sensor element having a sensing portion projecting from the open end of said housing;

a cover assembly made up of an outer cylindrical cover and an inner cylindrical cover each of which includes an open end portion  
10 and a body portion, the body portion of the inner cylindrical cover being disposed within the body portion of the outer cylindrical cover in a non-contact fashion, the open end portions of the outer and inner cylindrical covers having outwardly extending shoulders, respectively, which are placed in contact with each other and fitted  
15 within the groove of said housing; and

an extension formed around the groove of said housing, said extension being bent to urge the shoulders of the outer and inner cylindrical covers into engagement with each other to install said cover assembly on said housing.

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9. A gas sensor as set forth in claim 8, wherein said extension is welded to the shoulders of the inner and outer cylindrical covers so that a tip of the weld lies within a thickness of the shoulder of the inner cylindrical cover.

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